9. (Twice Amended) An isolated nucleic acid sequence comprising a polymorphic GCG repeat of exon I of a human PAB II gene, wherein said polymorphic GCG repeat has the sequence

$$ATG\ (GCG)_{6+n}\ GCA,$$

with n being selected from 1 to 7 and wherein said polymorphic repeat of said GCG repeat in a patient's human PAB II gene is indicative of a disease in said human patient.

11. (Twice Amended) The nucleic acid sequence of claim 9, wherein n is selected from 2 to 7, and wherein said polymorphic repeat of said GCG repeat is associated with an increased severity of said disease.

12. (Amended) The nucleic acid sequence of claim 11, wherein a phenotype associated with said polymorphic repeat of said GCG repeat is dominant.

REMARKS

Reconsideration of this application and entry of the foregoing amendments are respectfully requested. Applicants initially note that the Examiner has withdrawn his rejection of the specification in light of the submission of the new sequence listing. Applicants also note that the Examiner has also withdrawn his objection to claim 32 and his rejection to claims 1, 3 – 9, 11, 12, 31 and 32 under 35 USC § 112 first paragraph as well as of claim 9 under 35 USC § 102(b) as being anticipated by Akarsu et al. Support for the amendments to claims 1, 5 and 7-9 now submitted can be found throughout the disclosure and the claims as originally filed.

Claims 1, 3-9, 11 – 17, 31-32 and 37 to 39 are now pending.

Priority

The Examiner indicated that priority was not accorded to the foreign application (Canadian application 2 218 199, filed December 9, 1997 in Canada) because a certified copy of that application had not been filed. Submitted concurrently with this Amendment is a certified

copy of the Canadian application. It is requested that the present application now be accorded priority to the Canadian application.

Rejection under 35 USC § 101

Claims 9, 11 and 12 have been rejected under 35 USC § 101 as being directed to non-statutory subject matter. Applicants respectfully submit that in view of the amendment of independent claim 9 to introduce "an isolated" in front of "nucleic acid sequence", as suggested by the Examiner, rejection of claims 9, 11-12 under 35 USC § 101 has been rendered moot.

Applicants therefore respectfully request that the Examiner withdraws his rejection of claims 9, 11 and 12 being directed to non-statutory subject matter.

Rejection under 35 USC § 112 first paragraph

Claims 1, 3-8, 31 and 32 stand rejected under 35 USC § 112 first paragraph for lack of written description of a human PAB II gene. The Examiner notes that "other variants of the specific PAB II sequences are not disclosed or generally described, and the artisan would not (sic) readily recognized whether a potential variant was human or mouse". The Examiner further notes that "there is no description of other variants besides the GCG repeats which are associated with a disease in humans" and furthermore that "the claim encompass a human PAB II gene, however there is no description of the promoters, enhancers or other elements the artisan would recognize to be encompassed by the term "gene"." The Examiner concludes that "the specific polymorphic GCG repeat in exon 1 of human PAB II is adequately describe, however the basis of the rejection focuses on the context in which the sequence is claimed, specifically to encompass a human PAB II gene and other allelic variants associated with any disease in a human." The applicants respectfully traverse the rejection as follows.

Applicants respectfully submit that a person of ordinary skill in the art cognizant of the present invention and the reading of independent claims 1 and 31 which recite "isolated human PAB II gene, would indeed "readily recognize whether a potential variant was human or mouse".

Furthermore, in view of the amendment of claims 1 and 9 to delete the terminology "allelic variant" as suggested by the Examiner, the Applicants respectfully submit that the objection of the Examiner that "there is no description of other variant besides the GCG repeats which are associated with a disease in humans" has been rendered moot. Finally, with respect to the contention that "there is no description of the promoters, enhancers or other elements", the applicants respectfully submit that the specification (for example, starting at page 4), and figure 1B describe sufficient genetic elements of the human PAB II gene to enable a person of ordinary skill in the art to recognize what is encompassed by the term "gene". In view of above arguments and the amendments to claim 1, it is respectfully submitted that the isolated human PAB II gene as defined in independent claims 1 and 31, specifically defining the sequence of the polymorphic GCG repeats in exon I thereof, and their association with a disease in human patients meet the written description provision. In view of the above and foregoing, the applicants respectfully request that the Examiner withdraws his rejection of claims 1, 3-8, 31 and 32 under 35 USC § 112, first paragraph.

Rejection under 35 USC § 112, second paragraph

Claims 1, 3-9, 11 and 12 have been rejected under 35 USC § 112, second paragraph as being indefinite.

Applicants respectfully submit that the terminology "wherein an allelic variant of said GCG repeat" (in claim 1) or "wherein an allelic variant of said polymorphic GCG repeat" (in claim 9) the repeat being specifically defined in the claims, clearly defines and particularly points out the claimed subject matter. Nevertheless, in view of advancing the prosecution of this application, the applicants have agreed to amend claim 1 and claim 9 as suggested by the Examiner.

Claim 5 has been rejected as being "unclear and confusing" in the recitation of "wherein said human patient". Claim 5 was thus amended as suggested by the Examiner in the previous office action (at page 13) to introduce "of said human patient".

Claim 8 has also been rejected as being unclear and confusing for the use of the terminology "wherein said human patient is heterozygous". In view, of advancing the prosecution, applicants have amended claim 7 (which recited that "said patient is homozygous") and claim 8 so that both claims now recite that said gene is isolated from a patient who is homozygous (claim 7) or heterozygous (claim 8).

The terminology "the" in the preamble of claim 9 has been replaced by "a" to avoid the antecedent problem brought up by the Examiner.

In view of the above and foregoing, the applicants respectfully request that the Examiner withdraws his rejection of claims 1, 3-9, 11 and 12 under 35 USC § 112, second paragraph.

Rejection under 35 USC § 102

Claims 1, 3-9, 11-17, 31, 32 and 37-39 have been rejected under 35 USC § 102(a) as being anticipated by Brais et al. Nature Genetics, 1998.

Applicants note the Examiner's statement that "because the certified copy of the Canadian application has not been received the priority of the present application is the filing date of the PCT/CA98/01133, filed December 7, 1998." In view of the filing of the certified copy of the priority document herewith, filed on December 9, 1997, Applicants are entitled to the priority date of December 9, 1997. In view of this consideration, t is respectfully requested that the Examiner withdraws his rejection of claims 1, 3-9, 11-17, 31, 32 and 37-39 as being anticipated by Brais et al. 1998.

CONCLUSION

The rejections of claims 1, 3-9, 11-17, 31-32, and 37-39 have been overcome by the present remarks, and by the amendments to the claims. From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited.

If the Examiner believes that a telephone conversation would expedite prosecution of the application, the Examiner is invited to contact Elizabeth W. Mata at (915) 845-3558 (Mountain Time Zone). If Elizabeth W. Mata cannot be reached, the Examiner is invited to contact David E. Brook at (978) 341-0036.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

David E. Brook, R.N. 22592

By for Elizabeth W. Mata

Elizabeth W. Mata
Registration No. 38,236
Telephone (978) 341-0036
Facsimile (978) 341-0136

Concord, Massachusetts 01742-9133

Dated: 6/17/03

MARKED UP VERSION OF AMENDMENTS

Claim Amendments Under 37 C.F.R. § 1.121(c)(1)(ii)

1. (Twice Amended) An isolated human PAB II gene comprising a polymorphic GCG repeat in exon I thereof, wherein said polymorphic GCG repeat has the sequence

$$ATG\ (GCG)_{6+n}\ GCA,$$

with n being selected from 1 to 7 and wherein [an allelic variant] said polymorphic repeat of said GCG repeat is indicative of a disease in a human patient.

3. (Twice Amended) The gene of claim 1, wherein n is selected from 2 to 7, and wherein said [allelic variant] polymorphic repeat of said GCG repeat is associated with an increased severity of the disease.

4. (Amended) The gene of claim 3, wherein a phenotype associated with said [allelic variant] polymorphic repeat of said GCG repeat is dominant.

5. (Twice amended) The gene of claim 1, wherein [in said human patient] a first allele of said GCG repeat of said human patient has an n which is equal to 1.

7. (Amended) The gene of claim 1, wherein said gene is isolated from a patient who is homozygous for said polymorphic GCG repeat.

8. (Amended) The gene of claim 1, wherein said gene is isolated from a patient who is heterozygous for said polymorphic GCG repeat.

9. (Twice Amended) An isolated nucleic acid sequence comprising a polymorphic GCG repeat of exon I of [the] a human PAB II gene, wherein said polymorphic GCG repeat has the sequence

$$ATG\ (GCG)_{6+n}\ GCA,$$

with n being selected from 1 to 7 and wherein [an allelic variant] said polymorphic repeat of said GCG repeat in a patient's human PAB II gene is indicative of a disease in said human patient.

11. (Twice Amended) The nucleic acid sequence of claim 9, wherein n is selected from 2 to 7, and wherein said [allelic variant] polymorphic repeat of said GCG repeat is associated with an increased severity of said disease.

12. (Amended) The nucleic acid sequence of claim 11, wherein a phenotype associated with said [allelic variant] polymorphic repeat of said GCG repeat is dominant.